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BOOK REVIEWS.

Economic Geology of the United States; with briefer mention of foreign mineral products. By RALPH S. TARR, B.S., F.G.S.A., Assistant Professor of Geology at Cornell University. New York, Macmillan & Co., 1894, 509 p., 27 figs., 2 plates.

PROFESSOR TARR prepared this treatise to accompany his lectures on economic geology. In the preface he states that foreign localities have been referred to only where their importance or their bearing on the genesis of materials is noteworthy. The matter has been largely compiled. The author has himself studied in connection with official surveys many different areas in the United States, and one can see that he has brought much of his field observation to bear upon the treatment of his subject. The book deals with common rock and vein-forming minerals; rocks of the earth's crust, which are illustrated by an abstract of the admirable tabulation of igneous rocks made by F. D. Adams on the basis of Rosenbusch's system; physical geography and geology of the United States; origin of ore deposits; mining terms and methods; metalliferous deposits; non-metallic mineral products, including coal, petroleum, natural gas and asphaltum, building stones and cements, soils, clays, fertilizers, artesian wells and mineral waters, precious stones, abrasive materials, salt, miscellaneous minerals and general summary of mineral production.

The need of a hand-book of the economic geology of the United States has long been felt, and the works by Kemp and Lakes on ore deposits published in 1893 but partially covered the field which Professor Tarr has traversed in his generally lucid and engaging style. It is a drawback to a treatise on this subject that so far as it depends upon the merits of its tabulated statistics and of its description of existing processes in the arts of mining and manufacture, so sure is it shortly, with the rapid improvement and alteration in mechanical devices, to be discarded as out of date. While Professor Tarr has brought the statistics of production down to so late a date as the year 1892, the scope of the work and the method of treatment will recommend it for use as a text-book for undergraduate collegians long after its statistical information has ceased to be of practical utility. The real problems of economical geology, so far as they are distinct from those of geology proper, must usually be solved by the capitalist and producer. They are such questions as concern the relations of products and by-products, proximity to fuel, fluxes and markets, and are of themselves ever variable in their relations, though tolerably fixed in principle. While this side of the subject is generally least familiar to the geologist, and while our author makes no pretense in his headlines of discussing it, the student will find these important considerations have not been overlooked in the treatment of particular products.

The classification of ores used makes origin of primary and form of secondary significance. The detailed information which follows appears to fall clearly and easily into the groups formed upon this basis.

The local geologist will note some unimportant mistakes, which have doubtless been perpetuated through compilation. Thus it is stated that a few thousand tons of coal are annually produced from the New England coal basin, a statement which was true several years ago. By a slip of the pen, on p. 124, the author makes the "Huronian a division of the Archæan," instead of the Algonkian, as it is given in the table on p. 47. These errata may be readily corrected in a second edition. The press-work is of high order; there is a copious index and an appendix of useful reference books.

An Introduction to the Study of Petrology. By FREDERICK H. HATCH, Ph.D., F.G.S. London, Swan, Sonnenschein and Co.; New York, Macmillan and Co., 2nd edit., ill., 128 p., 90 cts.

THOUGH not new in point of publication, this small work, now in its second edition, continues to be the only elementary treatise on petrology in our language. It is not intended for children but for those older students who may be entering upon the microscopic study of rocks, or for those workers in other fields who may wish to understand something of the manner and methods of modern research in lithology. The book is well illustrated with cuts, drawn in many instances from the works of Rosenbusch, Fouqué and Lévy, Bonney, and Teall.

The Technique of Post-mortem Examination. By LUDWIG HEKTOEN, M.D. Chicago, Ill., W. T. Keener Co.

IN this little book of 170 pages Dr. Hektoen has supplied a lack in our literature. Here are given careful directions for ordinary post-mortem study, describing in detail necessary instruments, general methods of procedure, general points to be noted and the proper methods of keeping data. The book is illustrated with forty-one figures, and is excellently designed for the purpose of guiding the inexperienced physician in making autopsies to the best advantage, obtaining the greatest results therefrom, and keeping his records in the most satisfactory manner.

Le Cuivre. Par Paul Weiss, Ingénieur au Corps des Mines. Paris, Librairie J. B. Baillièvre et Fils. 1894, 96 figs., 344 p. Cartonné 5f.

IN this volume M. Weiss has presented a very-useful work on copper, designed not particularly for specialists, but rather for engineers and others who desire a clear general understanding of the metal, either from the standpoint of its position in economic geology, its chemistry, or its metallurgy. The work is divided into three parts, the first of which treats, in brief but sufficient detail, of the origin of copper and of its ores, of its physical properties and of its alloys. The second part treats of the metallurgy from the roasting of the ore to the refining of the last malte, including descriptions of the Bessemer copper process and of electro-refining. Part third describes the applications of copper, the market, the employment of the metal in electricity and finally the copper foundry and the manufacture of alloys, bronzes and brass. In this connection are given several reproductions of photographs showing the well-known works of M. Weiller at Angoulême. Tables of tensile strength, limit of elasticity, etc., for the various alloys, complete the volume. In treating of the origin and formation of the ores of copper the author, naturally, may be, but with reason, rejects the exclusive lateral secretion theory, as advocated particularly by some German authors, in favor of a fumerole action contemporaneous with the solidification of the basic rocks, the final position of the mineral, or metal, however, being determined by the action of circulating waters. The chapter on the molecular structure of copper alloys, being principally the experiments of M. Guillemin, is one of the most interesting. The examination under the microscope, after etching a polished surface with an appropriate reagent, shows remarkable difference in molecular structure corresponding with differences in chemical composition. Some thirteen micro-photographs are reproduced in illustration of the text, and it may be added that throughout the book is most excellently illustrated and is thus given a decidedly increased value to the general reader.